

ABSTRACT

Provided is a honeycomb filter which includes an aluminum titanate sintered product obtained by a process involving firing at a temperature of 1,250-1,700°C a raw material mixture composed of: 100 wt. % of a first mixture having TiO_2 and Al_2O_3 in a molar ratio of 40-60/60-40; and 1-10 wt. % of a second mixture composed of: an alkali feldspar according to the formula $\text{Na}_y\text{K}_{1-y}\text{AlSi}_3\text{O}_8$, wherein $0 \leq y \leq 1$; and a component selected from an oxide having a spinel structure composed of Mg and/or MgO, MgO and a precursor compound composed of Mg that is converted to MgO by firing, wherein the honeycomb filter exhibits excellent properties with respect to mechanical strength, thermal decomposition resistance, thermal shock resistance and thermal stability at high and fluctuating temperatures. Also provided is a method and an apparatus for cleaning an exhaust gas by removing solid particles predominantly containing carbon from the exhaust gas with the honeycomb filter. Also provided is a process for producing the honeycomb filter.